DOCUMENT RESUME

ED 161 115 24 EA 010 882

AUTHOR Reschovsky, Andrew
TITLE Predicting the Effect of New Jersey's New Educational Funding Law on Local Support for Education. New Jersey Urban Education Research Reports No. 3.
INSTITUTION New Jersey State Dept. of Education, Trenton.
SPONS AGENCY Bureau of Elementary and Secondary Education (DHEW/OE), Washington, D.C.
PUB DATE Jan 77
NOTE 24p.; For related documents, see EA 010 880-881 ; Prepared by the now defunct New Jersey Urban Education Observatory, Trenton

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Educational Finance; Educational Legislation; Educational Research; Elementary Secondary Education; *Equalization Aid; *Finance Reform; *Financial Support; School Support; State Aid; State Legislation; Tables (Data); Tax Rates
IDENTIFIERS New Jersey; New Jersey Public Law 212

ABSTRACT

Under the provisions of New Jersey Public Law 212, the amount of state equalizing aid for public education received by each local school district depends on how much revenue each district chooses to raise from local taxes. In order to predict the pattern of total school expenditures across New Jersey's school districts, it is necessary to predict how each school district will react to the new state educational grants. Predicting the level of local school taxation is extraordinarily difficult and requires a complex statistical model. Whether grants are categorical, block, or matching must be considered, since local governments react differently to receiving each type. Other factors to account for include local community educational preferences and support levels, and the amount of locally raised taxes to be borne by local citizens as opposed to noncitizens and industry. In the short run, the new system in New Jersey will increase state support in some districts and reduce it in others. The long run result of these effects cannot yet be determined. This document concludes by pointing out elements in the new formula that can affect future efforts at predicting local district responses. (Author/PGD)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED161115

PREDICTING THE EFFECT OF NEW JERSEY'S NEW EDUCATIONAL FUNDING LAW ON LOCAL SUPPORT FOR EDUCATION

NJ URBAN EDUCATION RESEARCH REPORTS
no. 3

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY.

EA 010 882

THE NEW JERSEY URBAN EDUCATION OBSERVATORY
An E.S.E.A. Title III –IVC Project Affiliated with

The New Jersey Department of Education
225 West State Street
Trenton, New Jersey 08625

The Educational Improvement Center
86 So Harrison Street
East Orange, New Jersey 07018

STATE BOARD OF EDUCATION

Mrs. Ruth Mancuso, President
Mrs. Anne S. Dillman, Vice President
Mr. S. David Brandt
Mr. William Colon
Mrs. Marion G. Epstein
Mr. Bryant George
Mrs. Constance Montgomery
Mrs. Katherine Neuberger
Mr. P. Paul Ricci
Mrs. Sonia B. Ruby
Mr. Jack Slater
Mrs. Helen A. Zehner

Secretary, Fred G. Burke, Commissioner of Education

EX OFFICIO

Honorable Ralph A. Dungan

STATE DEPARTMENT OF EDUCATION

Fred G. Burke
Commissioner

Ralph H. Lataille
Deputy Commissioner

Gary Gappert
Assistant Commissioner
Division of Research, Planning and Evaluation

THE URBAN EDUCATION OBSERVATORY

Langston L. (Trey) Coleman, *Director*

William A. Cozzens
Research Analyst

Joel Bloom
Educational Planner

Research Interns
Larry Coleman
Mark Latour
Steve Lonergan

Secretarial and Clerical Support
Maria Hvizda
Ann Leek

Cover Design: Joe Jones, Graphic Artist, Educational Improvement Center - Northeast

PREDICTING THE EFFECT OF NEW JERSEY'S NEW EDUCATIONAL FUNDING LAW ON LOCAL SUPPORT FOR EDUCATION

BY:

*Andrew Reschovsky**

Prepared for:

The Urban Education Observatory
New Jersey Department of Education

January, 1977

**Assistant Professor of Economics and Urban Planning, Livingston College, Rutgers University*

Preparation and publication of this report have been supported by the New Jersey Urban Education Observatory, a Title IV-C project of the New Jersey Department of Education. The Urban Education Observatory hopes that this report will contribute to the continuing discussion of appropriate policies for solving the complex problems of urban New Jersey and especially the problems of education in urban New Jersey.

The authors are solely responsible for the analysis and interpretation contained in this report. Support of this research by the Urban Education Observatory should not be interpreted as an endorsement of the authors' specific conclusions or recommendations.

ABSTRACT

Predicting the Effect of New Jersey's New Educational Funding Law on Local Support for Education

Under the provisions of P.L.212 the amount of state equalizing aid for public education received by each local school district depends on how much revenue each district chooses to raise from local taxes. Thus in order to predict the pattern of total school expenditures across New Jersey's school districts, it is necessary to predict how each school district will react to the new state educational grants.

In this paper we argue that the prediction of the level of local school taxation is extraordinarily difficult, and requires a complex statistical model. We discuss the reasons why this is true. In the final section of the paper we calculate the actual "matching rate" implied by the equalization aid formulas in the new legislation. The matching rate indicates the amount of state aid forthcoming for each extra dollar of local tax revenue raised.

CONTENTS

I. Introduction.....1

II. T&E School Funding and the Economic Theory of Grants-in-Aid.....2

III. The Incentive Effects of T&E School Funding.....10

Bibliography.....17

TABLES

1. Matching Rates and "Price" of Education Expenditures Under Equalizing Aid Formula of New Jersey P.L. 212.....13-15

I. Introduction

In response to the court decision in Robinson v. Cahill the New Jersey State Legislature passed P.L.212 [9], which mandated a new set of formulas for state support of public education. These formulas were designed to guarantee that every public school child in New Jersey will receive a "thorough and efficient" education. The legislature in specifying new state funding formulas for education has set up a pattern of state support that it hopes will guarantee that expenditures on public education in every school district in New Jersey will be sufficient to provide thorough and efficient education.

This paper seeks to answer the following question. Is it possible to predict the effect of the new funding formulas on the pattern of local school district expenditures? The new funding formulas cannot by themselves guarantee thorough and efficient education. They can at best generate a pattern of expenditures across the state, that is judged to result in thorough and efficient education. The question of how one operationally defines "thorough and efficient," and whether higher funding levels will in fact guarantee higher quality education are beyond the scope of this paper. The purpose of this paper is to assess the new funding formulas from the perspective of the impact they will have on the pattern of total educational funding in New Jersey. We will argue that it is very difficult to make accurate predictions of long-run expenditure patterns without using a complex simultaneous model of local fiscal behavior.

In Section II we will discuss New Jersey's new educational finance legislation in the context of a general theory of grants-in-aid. We will discuss the type of impact the new funding formulas are likely to have on spending

and taxing decisions of local school districts, and indicate the complexities involved in long-run expenditure predictions. In Section III we will take a detailed look at the new state funding formula and present some data on the incentive effects it creates.

II. T&E School Funding and the Economic Theory of Grants-in-Aid

The standard method used in evaluating school funding formulas is to calculate the aid entitlements of each school district under the formula provisions, and add these amounts to the current levels of expenditures. The implicit assumption is that any new state aid will be added on to the existing level of expenditures with no changes in the local level of educational support. In other words, a one dollar increase in state aid will generate an exactly one dollar increase in expenditures on education.

This procedure is inconsistent with widely accepted economic theory. The theory of grants-in-aid[1] suggests that school districts will respond to increases in grants-in-aid by either spending more or less local funds on education. The exact response depends on a number of factors, including the type of grant instrument used. In the last few years economists have shown considerable interest in trying to predict local government's response to educational grants-in-aid.[2]

In this paper we will attempt to explain why it is necessary to concentrate on local government behavior if we want to be able to predict the pattern of educational expenditures. We will then indicate what steps would be necessary in order to derive accurate predictions of local government behavioral responses to new state aid.

Public Law 212 specified five types of state aid. The first is equalization aid, which provides the largest segment of total state aid. The second type of aid is categorical aid, primarily for "special education" provided by local school districts. Aid is also specifically provided for debt service, and for capital outlays. Finally, the law specifies that the state will pay 100% of the cost of approved transportation.

Equalization aid is distributed through a type of formula that has seen widespread use in recent years -- percentage equalization. A pure percentage equalization formula provide aid in inverse proportion to the equalized valuation of each school district. The purpose of a pure percentage equalization formula is to equalize the size of the effective tax base across schools districts. In other words, districts with low values of equalized value will receive a larger percentage of their school expenditures from the state. A percentage equalization formula takes the following form:

$$(1) \qquad S_i = (1 - Y_i/Y_m) \cdot L_i$$

where S_i = the per student grant

Y_i = equalized valuation in district i

Y_m = the "target" equalized valuation

L_i = total per student expenditures.

It can be seen that (1) is what is called a variable matching rate grant formula. The size of the grant S_i is determined by the local government's spending decision. The more the local district decides to spend, the larger the amount of the grant received from the state. If Y_m is set high enough, every district will receive a grant. If Y_m is set so that some districts in

the state have a higher equalized valuation, then in a pure percentage equalization formula, these districts would pay locally raised funds to the State. Not surprisingly, no state actually requires a local district to pay out funds.

If we assume that the only source of grants to local school districts is percentage equalization aid, and all locally raised revenue comes from the property tax, then the local school budget equation can be written as:

$$(2) \qquad L_i = T_i + S_i$$

$$= t_i Y_i + S_i$$

where T_i = per pupil own-raised revenues

t_i = tax rate.

Exploiting this relationship we can easily show that the percentage equalization formula is mathematically equivalent to a "power equalizing" formula,[3] of the form

$$(3) \qquad S_i = t_i(Y_m - Y_i) \ .$$

The power equalizing formula was developed in response to the Serrano court case in California.[4] By looking at (3) we see that the formula will allow each district to spend on public education the amount it could raise if it had a tax base equal to the target tax base:

$$L_i = T_i + S_i \quad , \quad \text{thus} \quad L_i = T_i + [t(Y_m - Y_i)]$$

$$= T_i + (tY_m - T_i) \quad , \text{ and}$$

$$L_i = t_i Y_m \ .$$

Therefore every district that chooses a given tax rate will be guaranteed an

equal level of spending. In other words, the purpose of power equalizing is to make local district expenditure levels independent of the level of local wealth. The current situation in New Jersey is very far removed from this goal. Because of large variations in per pupil equalized valuations, equal tax rates generate highly variable amounts of per student revenues.[5]

Before we look at the precise form of the equalizing aid formula in the New Jersey legislation, we want to look more closely at formulas (1) and (3). As the amount received under either formula is a function of the locally determined tax rate, and as we are interested in predicting the pattern of expenditures on public education across school districts in New Jersey, we must be able to predict the degree to which school districts will tax themselves to support education. The major question we shall address is: Will the new legislation and the state support formulas it establishes affect the rates of local taxation in support of public education?

Economic theory provides us with some guidance in answering the above question. The theory suggests that local governments act in a consistent manner in response to the receipt of grants-in-aid. It is assumed that local governments can be viewed as behaving similarly to utility maximizing consumers, and that the political system works well enough so that local government decisions tend to reflect the aggregation of residents' preferences.

Two primary conclusions of the theory of consumer choice are of interest to us. First, consumers and local governments respond to increases in income by increasing their level of consumption. Second, consumers and local governments respond to higher prices for a given good by consuming less of it. By looking at the impact that grants have on community income and on the price communities pay for various goods, we can use the above conclusions to help

us predict the behavioral responses of local governments to grants.

We will consider the two major types of grants, categorical or block grants, and matching grants. The new education funding law includes both types of grants. A block grant is generally allocated according to a formula. It can be given for a quite specific purpose, e.g., to fund a remedial reading program, or it can be given for a wide range of possible uses, such as general revenue sharing. However, the distinguishing feature of a block or categorical grant is that the size of the grant is independent of local tax effort. A block grant serves the purpose of increasing the income of the local government receiving the grant. It is important to note that with one exception, local governments can treat any block grant, even those tied to a very specific expenditure category, as if it is an unrestricted increment to local income. The reason for this is that the actual locally raised revenues previously spent on the aided function can be easily switched to other uses. At the extreme, the grant may provide a 100% substitute for locally raised funds previously used for that purpose. The only exception is the case where, prior to receipt of the categorical grant, the local government was spending less on the aided function that the amount of the grant. In this case, spending on the aided function must increase.

In the more general case, where a local government is already spending more on an aided function than the size of the grant, what determines the rate at which the grant stimulates expenditures on the aided function? Or put the other way, what determines the degree to which the grant will substitute for locally raised revenues spent on the aided function? In one sense, the answer to these questions is easy. Preferences for the aided function relative to other functions of the local government will determine the degree to which a

categorical grant increases expenditures on an aided function. The real question obviously remains, how are local government preferences determined. We will delay looking at this issue until we discuss the second major type of grant, matching aid.

Matching aid differs from categorical aid in that the amount of the grant is tied to local tax effort. The matching rate, M, indicates the size of the grant relative to the local contribution. A matching rate of one indicates that for every dollar raised by the local government, they will receive a one dollar grant. A matching rate of ½ implies that a one dollar local tax contribution will generate 50 cents from the state or federal governments.

If we let L_i equal district expenditures, T_i equal local taxes, Z_i equal categorical aid, and M, the matching rate, the budgetary identity of a local district is:

$$L_i = (1 + M)T_i + Z_i \quad . \tag{4}$$

The consequence of receiving a matching grant for education is that in addition to providing additional resources to the local district, it lowers the price of educational expenditures relative to other goods. Using a concept of price that is analogous to the price of private goods, the price of an extra dollar spent on education is the cost to the local school district in terms of taxes of raising that extra dollar. If the local district receives no matching aid, the price equals one; however, if a district received a matching grant with a matching rate equal to one, the price of education would only be ½, as an increase of only 50 cents in taxes would generate an extra dollar of revenues for education.

If we let P_i equal price and define G_i as total matching aid, i.e.,

$G_i = MT_i$, it can easily be shown that $P_i = \frac{1}{1 + M}$.[6]

The consequence of effectively lowering the price of one type of good is to lead to the substitution of spending on that good, for other goods. Thus economic theory leads us to expect that matching aid will be more stimulative to spending on an aided function than categorical aid. With a categorical grant, spending is stimulated only through an "income effect," while with matching aid, spending is stimulated by both an "income" and "substitution" effect. Needless to say, the degree of stimulation depends on the strength of preferences for the aided function in each local community.

How will the above information help us predict the patterns of educational support over the next decade or so? We do know that, ceteris paribus, matching aid should stimulate spending. However, the degree of stimulation depends on how strong preferences for public education are in various communities. These preferences are determined by a number of factors such as the occupational composition and educational levels of the residents, the proportion of residents with school age children, and the proportion of children in private or parochial schools. The level of support for public education is also determined by the actual price of education. In addition to the relevant matching rate, the price is determined by the proportion of school expenditures that residents do not have to pay for, either because commercial-industrial property can bear part of the burden, or because the incidence of local taxes can be exported to non-residents of the community.

It should thus be clear that a considerable amount of information is required if we want to be able to predict the response of local school districts to changes in the price of education and in the resources available to finance education.

Unfortunately any attempt at long-run predictions of the pattern of education support is even more difficult than indicated so far. Local school district fiscal decisions are made in the context of a very complex system of interacting forces. The accurate prediction of any one element in this system requires the simultaneous consideration of the effects of all other parts of the system.[7] In the following paragraphs we will mention several of the factors that must be considered in this interactive system of local fiscal behavior.

Local school districts must compete with the municipal government, (usually having the same geographical boundaries) for the same fiscal resources. If there are large nonschool demands on these resources, this fact will clearly affect the resources available for funding education and the response to grants-in-aid in support of education.

If a power equalizing formula is used to provide state support for education, districts with a high level of equalized valuation will face a relatively high price for education. The response of these rich districts may be to in effect "drop out" of the public education system, by sending their children to private schools, and substantially reducing their level of support for their public education system. In a sophisticated simulation study of a power equalizing formula, based on New York State data, Inman [5] finds that a number of high income school districts choose to "drop out."

The new system of state support for education will have the short-run effect of increasing state support in some districts, and reducing it in others. A number of long-run consequences of these fiscal changes are possible. For instance, some families may decide to move to or not to move from districts receiving substantially more aid. Alternatively, mobility decisions may be affected by the reduction of state aid.

The consequences of these changes in population may have significant impacts on local support for education. For instance, if most in-migrants to a district have strong preferences for education, they may, through the political process, influence the level of local tax effort in support of education.

These grant induced population changes may have another effect. Population movements can result in the capitalization of preferences for certain areas into housing values, resulting in changes in equalized valuations.[8] Changes in equalized valuation will change the matching rate in the school funding formula and result in further changes in the level of support for education.

It is hopefully clear from the above discussion that accurate long-run predictions of education support levels are difficult indeed, and require the estimation of a highly complex model. It should also be clear that any snap predictions about the effectiveness of the new school funding formulas are risky. Although the equalization formula is designed to lessen the correlation between community wealth and the level of expenditures on education, this result will not be achieved unless local school districts react to the new aid package in a prescribed manner. And it is difficult to make a priori predictions concerning local district behavior, in the absence of a complex statistical model.

III. The Incentive Effects of T&E School Funding

In this final section of the paper we want to briefly examine the new state equalization aid formula and point out several of its features that will have an impact on predicting local district behavioral responses to the

new grants.

As was pointed out in Section II, the equalization aid formula is basically a matching formula that can be characterized as a percentage equalization or power equalizating formula. It is designed to provide more aid to districts with lower levels of equalized valuation. The formula can be written as

(5) $$G_i = \left[1 - \frac{Y_i}{Y_m} \right] K_i \qquad \text{if } G_i > .1R_i \text{ , and}$$

$$G_i = .1R_i \qquad \text{if } G_i < .1R_i \text{ .}$$

where all variables are in per pupil terms, and

G_i = equalizing grant

Y_i = equalized valuation in district i

Y_m = guaranteed valuation = 1.3 x State average per pupil valuation = $86,000 in 1976

K_i = minimum (E_i, R_i)

E_i = net current expenses last year

R_i = support limit = 65th ranking of current expenditures per pupil, ranking from low to high = $1,528 in 1976

It will be useful to calculate the effective matching rate (M) implied by (5). Recall that the matching rate is defined as the grant per dollar of own-raised revenue. As K_i is basically equal to total current expenditures, it can be expressed as

(6) $$K_i = T_i + G_i \quad .^9$$

Substituting (6) into (5) and solving for G_i yields:

$$(7) \qquad G_i = \left(\frac{Y_m}{Y_i} - 1 \right) T_i \quad .$$

The term in the parentheses indicates the extra aid, G_i, for an increase in local effort, T_i, and thus is equal to the matching rate, M. As the price of an extra dollar of expenditures on education is equal to $\frac{1}{M + 1}$, the price $P = \frac{Y_i}{Y_m}$.

There are two provisions of the legislation that result in the matching rate being set equal to zero. Whenever Y_i is greater or equal to Y_m, the matching rate would be zero or negative. However, because this would result in a zero or negative G_i, the school district receives an automatic minimum grant of $152.80 in 1976 (10% of support limit). An increase in local effort will not increase G_i, and hence M = 0. The second provision of the formula that generates an M equal to zero is that the state will provide support only up to the support limit of $1528 (in 1976). Thus all districts that spent more than that amount cannot increase the size of their grant by increasing their locally raised revenues, T_i.

In a sample of 62 New Jersey school districts that includes the 28 Urban Aid Cities plus a representative sample of the rest of the state, 26 districts have a matching rate equal to zero. For these districts, state equalizing aid was independent of local tax effort. Not surprisingly, most of the districts with a zero rate were in the non Urban Aid group; however, six of the 28 Urban Aid Cities also faced a zero matching rate. Table 1 lists the matching rate, M, and the price, $P_i = \frac{1}{1 + M}$, for the sample districts divided into five groups by degree of urbanization and income.

Note that the range of matching rates is quite large, from 0 to 3.22. This suggests that there is a potential for a substantial increase in education

spending in some communities. However, as we have argued in Sectio. nitive predictions of the future patterns of expenditure, and conseque predictions about the new legislation's potential to achieve "thorough a efficient" education, require the estimation of a complex model of local ment fiscal behavior.

TABLE 1

Matching Rates and "Price" of Education Expenditures under Equalizing Aid Formula of N.J. P.L.212

Low Income Urban Communities

Municipality	Matching Rate	Rank	"Price"	Rank
Atlantic City	0.8797	43	0.5320	20
Little Ferry	0.0000	3	1.0000	39
Moonachie	0.0000	4	1.0000	40
Camden City	3.2154	62	0.2372	1
Bridgeton	2.7058	60	0.2699	3
Vineland	1.0367	48	0.4910	15
East Orange	1.3890	51	0.4186	12
Irvington	0.6925	41	0.5909	22
Newark	2.8402	61	0.2604	2
Orange	0.0000	12	1.0000	48
Bayonne	0.1427	31	0.8751	32
Hoboken	2.2674	59	0.3061	4
Jersey City	1.5549	55	0.3914	8
North Bergen	0.0000	13	1.0000	49
Union City	1.4604	53	0.4064	10
West New York	1.3394	49	0.4275	14
Trenton	2.2108	58	0.3114	5
New Brunswick	0.0000	15	1.0000	51
Perth Amboy	0.4152	34	0.7066	29
Asbury Park	0.0000	16	1.0000	52
Lakewood	0.0952	29	0.9131	34
Clifton	0.0000	19	1.0000	55
Passaic City	1.0153	47	0.4962	16
Paterson	1.9683	57	0.3369	6
Elizabeth	0.3914	33	0.7187	30
Hillside	0.1081	30	0.9024	33
Plainsfield	0.9890	45	0.5028	18
Phillipsburg	0.9372	44	0.5162	19

TABLE 1 (cont.)

Moderate and High Income Urban Communities

Municipality	Matching Rate	Rank	"Price"	Rank
Fort Lee	0.0000	2	1.0000	38
New Milford	0.0000	5	1.0000	41
Waldwick	0.0000	6	1.0000	42
Cinnaminson	0.6109	40	0.6208	23
Pennsauken	0.0458	28	0.9562	35
Montclair	0.0000	11	1.0000	47
Hamilton Twp.	0.4637	37	0.6832	26
Long Branch	0.0000	17	1.0000	53
Neptune Twp.	0.8552	42	0.5390	21
Pompton Lakes	0.0000	20	1.0000	56

Low and Moderate Income Suburban Communities

Municipality	Matching Rate	Rank	"Price"	Rank
Florence	0.0256	27	0.9751	36
Laurel Springs	0.5325	38	0.6525	25
Ocean City	0.0000	8	1.0000	44
Wildwood Crest	0.0000	9	1.0000	45
Washington Twp.	0.9938	46	0.5016	17
Sayreville	0.1581	32	0.8635	31

High Income Suburban Communities

Municipality	Matching Rate	Rank	"Price"	Rank
Englewood Cliffs	0.0000	1	1.0000	37
Moorestown	0.0000	7	1.0000	43
Millburn	0.0000	10	1.0000	46
Chatham Borough	0.0000	18	1.0000	54
Pequannock	0.4417	36	0.6936	27
Montgomery	0.0000	22	1.0000	58
New Providence	0.0000	24	1.0000	60
Westfield	0.0000	25	1.0000	61

TABLE 1 (cont.)

Rural Communities

Municipality	Matching Rate	Rank	"Price"	Rank
Dennis Twp.	0.5514	39	0.6446	24
Middle Twp.	0.4271	35	0.7007	28
Millville	1.5256	54	0.3959	9
Washington Twp.	0.0000	14	1.0000	50
Plumsted	1.4176	52	0.4136	11
Pittsgrove	1.6645	56	0.3753	7
Upper Pittsgrove Twp.	1.3737	50	0.4213	13
Bedminster	0.0000	21	1.0000	57
Newton	0.0000	23	1.0000	59
Belvidere	0.0000	26	1.0000	62

FOOTNOTES

[1] See Oates [11], Break [1], or Netzer [8], for good summaries of the theory.

[2] See, for instance, the studies of Inman [6], Feldstein [3] and Grubb and Michelson [4].

[3] Substituting (2) into (1), we have $S_i = \left(1 - \frac{Y_i}{Y_m} \right)(tY_i + S_i)$.

Solving for S_i yields: $S_i = \left(\frac{Y_m}{Y_i} - 1 \right) t_i Y_i$, which can be simplified to (3).

LeGrand and Reschovsky [7] show that although the algebra is slightly more complicated, the fundamental identity between percentage equalization and power equalizing also holds when local districts receive categorical state or federal grants.

[4] See Coons, Clune, and Sugarman [2].

[5] The range of equalized valuation per pupil in New Jersey is immense. On one extreme is the industrial enclave, Teterboro, with 80,000,000 equalized value per pupil. A number of districts have equalized valuation over 200,000. On the other extreme, a number of districts have less than 25,000 per pupil equalized valuation.

[6] As $M = \frac{G}{T}$, $\frac{1}{M + 1} = \frac{T_i}{T_i + G_i}$, which is by definition, P_i. From (4) we also see that $L_i = \frac{T_i}{P_i} + Z_i$.

[7] For a comprehensive development of a model of the local political economy, see Inman [5].

[8] Oates [10] in a study of New Jersey communities found that high expenditures on education were capitalized into higher housing values.

[9] L_i is defined in the legislation as current expenditures minus categorical aid and federal grants. In terms of our previous notation, K = total expenditures (L_i) minus Z_i, categorical grants.

BIBLIOGRAPHY

[1] Break, George F., Intergovernmental Fiscal Relations in the United States, Brookings Institution, 1967.

[2] Coons, John E., William Clune III, and Stephen Sugarman, Private Wealth and Public Education, Harvard University Press, 1970.

[3] Feldstein, Martin S., "Wealth Neutrality and Local Choice in Public Education," American Economic Review, March 1975.

[4] Grubb, W. Norton and Stephen Michelson, States and Schools; The Political Economy of Public School Finance, Lexington, 1974.

[5] Inman, Robert P., "Grants in a Metropolitan Economy -- A Framework for Policy," in Financing the New Federalism: Revenue Sharing, Conditional Grants, and Taxation, Resources for the Future, 1975.

[6] Inman, Robert P., "School Financing and Equal Opportunity: An Economic Analysis of a Legal Challenge," University of Pennsylvania, 1973.

[7] LeGrand, Julian and Andrew Reschovsky, "Concerning the Appropriate Formulae for Achieving Horizontal Equity through Federal Revenue Sharing," National Tax Journal, December 1971.

[8] Netzer, Dick, "State-Local Finance and Intergovernmental Fiscal Relations," in The Economies of Public Finance, Brookings Institution, 1974.

[9] New Jersey Laws, Chapter 212, 1975.

[10] Oates, Wallace E., "The Effects of Property Taxes and Local Public Spending on Property Values: An Empirical Study of Tax Capitalization and the Tiebout Hypothesis," Journal of Political Economy, November-December 1969.

[11] Oates, Wallace E., Fiscal Federalism, Harcourt Brace Jovanovich, 1972.